

What is claimed is:

1 (1) A system for managing and utilizing location-based information, said system being
2 adapted to create a plurality of interrelated location hierarchies, to create a plurality of data types
3 each having user-definable attributes, to create data records within said plurality of data types by
4 providing values for said user-definable attributes, to map said data records into said location
5 hierarchies, to create relationships between said data types and records, and to perform location
6 intersect queries for quickly retrieving data records.

1 (2) The system of claim 1 wherein said system is adapted to perform said location intersect
2 queries by determining an overlap between a first data record in a first location hierarchy and at
3 least one second data record in a second location hierarchy.

1 (3) The system of claim 1 wherein said system is adapted to perform said location intersect
2 queries by determining an overlap between a first data type in a first location hierarchy and at
3 least one second data type in a second location hierarchy.

1 (4) The system of claim 1 wherein said system is adapted to perform said location intersect
2 queries by determining an overlap between a first data type in a first location hierarchy and at
3 least one first data record in a second location hierarchy.

1 (5) The system of claim 1 wherein said system is further adapted to associate each of said
2 data records with a time, wherein said time may be selectively defined as fixed, relative to a user,
3 and relative to said system, and to further perform queries for quickly retrieving said data records
4 based upon time.

1 (6) The system of claim 1 wherein each of said attributes may be defined as fixed or as a
2 dynamic rule that is embedded into the data record and that includes at least one variable, and
3 wherein said system is further adapted to perform queries that run said dynamic rules in order to
4 quickly retrieve data records.

1 (7) The system of claim 1 wherein said system is adapted for use in a retail environment and
2 wherein said plurality of interrelated location hierarchies comprises:

3 an advertising hierarchy for mapping promotions to particular marketing areas;
4 a geographic hierarchy containing uniform postal codes; and
5 a distribution hierarchy for mapping stores to particular distribution areas.

1 (8) The system of claim 7 wherein said stores are defined by a first data type, wherein
2 products are defined by a second data type, and wherein a relationship is created between said
3 first and second data types, thereby associating products to stores.

1 (9) The system of claim 8 wherein said relationship between said first and second data types
2 includes an extended attribute representing inventories of said products within said stores.

1 (10) A system for managing and utilizing time-based information, said system being adapted
2 to create a plurality of data elements which may each be associated with a time, wherein said
3 time may be selectively defined as fixed, relative to a user, and relative to said system, and to
4 perform queries for quickly retrieving data elements based upon time.

1 (11) The system of claim 10 wherein each of said data elements includes a plurality of user-
2 definable attributes, wherein each of said attributes may be defined as fixed or as a dynamic rule
3 that is embedded as part of the data element and that includes at least one variable, and wherein
4 said queries are adapted to run said dynamic rules in order to quickly retrieve data elements.

1 (12) The system of claim 11 wherein said system is further adapted to create a plurality of
2 interrelated location hierarchies, to map said data elements into said location hierarchies, to
3 create relationships between said data elements, and to perform location intersection queries for
4 quickly retrieving data elements.

1 (13) A system for managing and utilizing location and time-based information, said system
2 being adapted to create a plurality of data elements each including a plurality of user-definable
3 attributes, wherein each of said attributes may be defined as fixed or as a dynamic rule that is
4 embedded as part of the data element and that includes at least one variable, and to perform
5 queries that run said dynamic rules in order to quickly retrieve data elements.

1 (14) The system of claim 13 wherein said at least one variable comprises time.

1 (15) The system of claim 13 wherein said at least one variable comprises location.

1 (16) A system for managing and utilizing location and time-based information comprising:

2 a first portion adapted to receive location information, and to create a plurality of
3 interrelated location hierarchies based upon said location information;

4 a second portion adapted to receive content information, and to create a plurality of
5 content types based upon said content information, each of said content types including a
6 plurality of attributes;

7 a third portion adapted to receive relationship information, and to create relationships
8 between different content types;

9 a fourth portion adapted to create data records within said plurality of content types, by
10 providing values for attributes of said content types;

11 a fifth portion adapted to associate said data records to locations within said plurality of
12 interrelated location hierarchies; and

13 a sixth portion adapted to receive location and time-based queries and to retrieve relevant
14 data records, based upon said queries.

15 (17) The system of claim 16 wherein said fourth portion is adapted to define attributes by use
16 of micro-rules, which allow the value of said attributes to vary based upon at least one variable,
17 and wherein said sixth portion is adapted to run said micro-rules to perform said queries.

1 (18) The system of claim 17 wherein said at least one variable comprises time.

1 (19) The system of claim 17 wherein said at least one variable comprises location.

1 (20) The system of claim 16 further comprising:

2 a seventh portion adapted to create macro-rules that are applied to data records returned
3 from a query.

1 (21) The system of claim 20 wherein said macro-rules are adapted to arrange said data records
2 in a user-selectable format.

1 (22) The system of claim 16 wherein said system is adapted for use in a retail environment
2 and wherein said plurality of interrelated location hierarchies comprises:

- 3 an advertising hierarchy for mapping promotions to particular marketing areas;
4 a geographic hierarchy containing uniform postal codes; and
5 a distribution hierarchy for mapping stores to particular distribution areas.

1 (23) The system of claim 22 wherein said stores are defined by a first data type, wherein
2 products are defined by a second data type, and wherein a relationship is created between said
3 first and second data types, thereby associating said products and said stores.

1 (24) The system of claim 23 wherein said relationship between said first and second data types
2 includes an extended attribute representing inventories of said products within said stores.

1 (25) A method for managing and utilizing location and time-based information comprising the
2 steps of:

- 3 creating a plurality of interrelated location hierarchies;
4 creating a plurality of data types each having user-definable attributes;
5 creating data records within said plurality of data types by providing values for said user-
6 definable attributes;
7 mapping said data records into said location hierarchies;
8 creating relationships between said data types and records; and
9 performing location intersect queries for quickly retrieving data records.

1 (26) The method of claim 25 further comprising the steps of:
2 associating at least one of said data records with a time, wherein said time may be
3 selectively defined as fixed, relative to a user, and relative to said system; and
4 performing queries for quickly retrieving said data records based upon time.

1 (26) The method of claim 25 wherein each of said attributes may be defined as fixed or as a
2 dynamic rule that is embedded into the data record, and further comprising the step of:
3 performing queries that run said dynamic rules in order to quickly retrieve data records.

1 (27) The method of claim 26 wherein at least one of said dynamic rules is time-based.

1 (28) The method of claim 26 wherein at least one of said dynamic rules is location-based.

1 (29) The method of claim 26 further comprising the step of:

2 creating macro-rules that are applied to data records returned from a query, said macro-
3 rules being adapted to change the value of attributes of said returned data records based upon
4 business logic within said macro-rules.

1 (30) A method for managing and utilizing location and time-based information comprising:

2 receiving location information from a user;

3 creating a plurality of interrelated location hierarchies based upon said location
4 information;

5 receiving data from a user;

6 creating a plurality of data types each including a plurality of attributes, based upon said
7 data;

8 creating relationships between different data types;

9 creating data records within said plurality of data types, by providing values for attributes
10 of said plurality of data types;

11 associating said data records to times and to locations within said plurality of interrelated
12 location hierarchies;

13 receiving location and time-based queries; and

14 retrieving relevant data records, based upon said queries.

1 (31) The method of claim 30 further comprising the steps of:

2 defining attributes by use of micro-rules, which allow the value of said attributes to vary
3 based upon at least one variable; and

4 running said micro-rules while performing said queries in order to quickly retrieve said
5 data records.

1 (32) The method of claim 31 further comprising the step of:

2 creating macro-rules that are applied to data records returned from a query, said macro-
3 rules being adapted to change the value of attributes of said returned data records based upon

4 business logic within said macro-rules, which is based upon an input selected from the group
5 consisting of time and location.

1 (33) The method of claim 31 further comprising the step of:
2 creating macro-rules for arranging said data records in a user-selectable format.

For filing